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REACTIONS TO "12 ANGRY MEN" AS A MEASURE OF SENSITIVITY TRAINING

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The jury deliberations at the completion of a murder trial form the basis of the movie, "12 Angry Men". Issues of leadership, conformity, and deviation form the basis of the plot. Each juror exemplifies a distinct character type so that it is not even necessary to identify the jurors by name. The hero is the architect, Henry Fonda, who prevents a premature, ill-considered unanimous vote of guilty and then succeeds by a variety of permissive techniques to help the jury explore in less haste, the validity of the evidence previously presented during the trial. Numerous group dynamics phenomena appear. For example, the utility of members building upon each other's ideas becomes apparent.

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The film has been used extensively in management training laboratories because of its rich illustrative materials. As much as a full day of activity and discussion in such a laboratory may be devoted to viewing the film and a critique of it afterwards. After such discussions, most trainees volunteer to see the film again. Many trainers have seen the film as much as 30 times and still believe they observe new nuances in the behavior of the various

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characters and the interactions that occur. Between the authors, the film director, and the actors, an extremely complex portrayal of human interrelationships in reaching a decision is portrayed.

The film, thus, is a rich, complex stimulus. The extent viewers understand what was occurring in the film was thought to provide a basis for measuring their sophistication with reference to interpersonal relationships. Accordingly, a sentence completion test was devised to measure individual viewer's reactions to the film. The sentence completion procedure represented a compromise.. Sentence completion is a projective, open-ended, measuring instrument which might detect, at a fairly deep level, attitudes and understandings. Yet, at the same time, it is a reasonably objective device, replicable, and easy to administer and score.

Such a sentence completion test was developed. This report concerns its construction and evaluation as well as its application to measuring the effectiveness of a management training laboratory in increasing the sensitivity of its trainees. Also some evidence on the sensitivity-leadership relationship will also be offered.

CONSTRUCTION OF THE SENTENCE COMPLETION TEST OF SENSITIVITY

Trial Form

Thirty-six members of a management training laboratory saw the film "12 Angry Men" at the first meeting of the group and two weeks later on the last day of the laboratory. After each showing of the

film, each participant was asked to complete each of the following sentences:

1. The reason that the architect (Henry Fonda) went over to the drinking fountain was that...
2. The men most sensitive to pressures from others were men who...
3. The old man changed his vote because...
4. The advertising man changed his vote twice because...
5. The owner of the messenger service (Lee Cobb) was so upset by the shift in voting by the group because...
6. The architect did not try to argue with the salesman (baseball fan) as much as he did with the broker because...
7. On the second ballot, the old man was the one who changed his vote. But the messenger service owner (Lee Cobb) thought it was the man from the slums who had changed. This was because...
8. The architect (Henry Fonda) was able to influence the other members because...
9. The broker (the man who wore glasses) changed his vote because...
10. The bookkeeper changed his vote because...
11. The man from the slums changed his vote because...
12. The architect (Henry Fonda) did not reveal his copy of the knife immediately because...
13. The cough drops were significant because...
14. What I found most interesting in the film was...

To aid completion of these responses and to facilitate recall, a diagram (Figure 1) of the 12 men seated around the table in the jury room was also provided examinees. This same diagram was always provided in subsequent administrations of the test.

Initial Sensitivity Key. The responses of 10 of the examinees randomly drawn from the 36 available, were content analyzed to develop the initial key for maximally discriminating between the "sensitive" responses from "insensitive" responses. It was assumed that any changes manifest in responding from before to after the lab would be in the direction of increased "sensitivity"; operationally we searched at this point for responses differentiating the same viewer from before to after a laboratory experience. We were guided by a working definition that the sensitive responder would be more oriented towards the interaction occurring in the group; towards process analysis of interpersonal behavior, rather than on personality stereotyping. In contrast, we described an insensitive viewer as superficial, innocent or simple in his explanations; relying mainly on logic or the attributing of personality traits to account for events. The insensitive viewer was blind to subtle social cues observed by more sensitive viewers. For example, in reaction to the question of why Henry Fonda suddenly left his seat to stand at a water fountain while a critical vote was taken by the rest of the group, it was expected that the insensitive person would state that Henry Fonda went to the drinking fountain "to get a drink of water" or "to think alone for awhile about the issues". A more sensitive viewer might interpret Henry Fonda's behavior as an effort to dramatize his not being in the group as yet; or that each of the 11 other jurors, the group without Henry Fonda, was now alone responsible for the decision to end further deliberations, or to explore the evidence more fully before deciding on the guilt of the

defendant.

With these distinctions in mind, the individual responses of 10 of the management trainees completing forms at the beginning and at the end of the same laboratory, were content analyzed searching for bases for distinguishing pre-laboratory responses, regarded as generally more likely to be insensitive responses, to post-laboratory responses, regarded as more likely to be sensitive. Naturally, some examinees were responding with more sensitive answers at the beginning of the laboratory, than others were responding at the end of the laboratory, but it was felt that general differences could be observed, and codified.

A coded key was constructed for distinguishing between sensitive and insensitive responses and applied to the remaining 26 individuals in the laboratory. Item analysis disclosed that eight of the items and their coded scoring procedures discriminated the performance of viewers before and at the close of a laboratory. These eight items and their scoring key became the final instrument used in subsequent studies. Figure 2 presents the items and key.

Inspection of the key should provide the reader with a more detailed statement of the differences between sensitive interpretation of the film and insensitive understanding.

NORMS

In a subsequent management training laboratory, 29 participants viewed the film approximately one week after the start of the sensi-

tivity training laboratory and earned a mean of .93 on the sentence completion test with a standard deviation of 3.32. In a replication with 30 members of a later management training laboratory viewing the film at the end of the first week, a mean of .37 with a standard deviation of 2.66 was obtained. For reasons beyond our control, it was not possible to check for scoring agreement by having two independent raters score the forms, however, the standard deviations of 2.66 and 3.32 relative to the maximum possible range of -8 to +8 suggest that consistent individual differences were observed in responding to the eight items of the form. This was corroborated by the test-retest reliability of the test.

Reliability

The test-retest reliability of scores based on two administrations at the beginning and end of a laboratory for 34 examinees was .71. Whatever changes occurred during the laboratory failed to wash out the consistent individual differences appearing on the examination.

EFFECTS OF TRAINING

A new sample of 34 management training laboratory participants, all supervisors or executives in a single plant, were administered the film and sentence completion test at the beginning and at the end of a two week training laboratory. Prior to training, a mean of -1.65 was earned by the 34 participants; at the conclusion of training, the retest mean was +.38 with standard deviations of 3.35 for the first

administration and 3.80 for the second administration. The mean increase in sensitivity of 2.03 was ten times greater than the standard error of the mean difference. The latter was quite small, partly because much of the error due to individual differences could be removed due to the correlation of .71 found between scores earned by examinees on the pre-training test and their scores on the second administration of the sentence completion test.

Figure 3 shows the distribution of the sensitivity scores of the 34 participants before and after the laboratory experience.

Practice Effect?

Does merely taking the test and seeing the film twice enhance scores?

We have no evidence of how examinees would react a second time if during the intervening period between test and retest, they received no training. Nevertheless, we can compare the performance at the end of a laboratory of those men seeing the film for the first time with the performance of those seeing the film a second time. Making this comparison leads to the inference that there is no enhancement of scores merely as a consequence of having taken the test before. For the mean of .38 after the laboratory for these 34 men is comparable to those means of .93 and .37 obtained for participants of other laboratories who were administered the film and test near the end of their respective laboratories also, but who had no opportunity to see the film or take the test earlier. If mere practice

were significant in raising scores then the mean performance of trainees given the test only once, but near the end of their respective laboratories, would be closer to the mean of -1.65 earned by the sample first administered the film before receiving any training. Table 1 illustrates the point.

TESTED SENSITIVITY RELATED TO EVALUATION BY OTHERS

Tested Sensitivity Related to Peer Ratings

Near the end of the management laboratory training of 34 supervisors, after approximately one week's experience with each other in training groups, each trainee was asked to rate on a 9-point scale every other member in his own group on the extent of "his keen awareness of what was going on in the group". Each ratee was rated by 10 or 11 other laboratory participants and the ratings assigned were averaged to determine a single score for each ratee. These scores were correlated with sensitivity test scores before and after laboratory training earned by each of the 34 participants. As shown in Table 2, a product-moment correlation of .27 was obtained between rated "awareness" and tested sensitivity on the first administration. The correlation dropped to .13 on the second administration of the sensitivity test. A correlation of .33 would have been significant at the 5 per cent level with 32 degrees of freedom.

Tested Sensitivity Related to Staff Psychologists' Appraisals

Staff psychologists working with twelve man training groups

within the larger laboratory of 34 participants ranked each of the delegates within their own group according to the extent they felt the ratee was aware and sensitive to the reactions of others within the group. Correlations significant at the 5 per cent level of .38 and .36 were found between the staff psychologists' ratings and tested sensitivity before as well as after training.

TESTED SENSITIVITY AND INFLUENCE

Discussed in detail elsewhere (Bass, 1960 p. 167-172) are the expected relations between empathy, social sensitivity and success as a leader in influencing the behavior of associates. Despite the conflicting and inconsistent results reported by a variety of empirical studies on the subject, it was suggested that one who is aware of the needs of others around him is more likely to be influential among his associates, all other things being equal. If our sentence completion test was truly measuring sensitivity to interpersonal phenomena, then the scores on the test should predict success as a leader. Such proved to be true. The same peers mentioned above in each of the three training groups, close to the end of the laboratory experience, rated each other in the amount of success as leaders, or in the amount of influence each had been able to exhibit among colleagues. Influence scores were obtained by averaging the ratings assigned a given individual by the 10 or 11 others who rated him. As seen in Table 2, the correlation of .47 significant at the 1 per cent level of confidence was obtained between influence and tested sensitivity

on the first administration of the test. The correlation dropped to .28 on the second administration. Given about one-third more cases, this would have attained statistical significance also.

TESTED SENSITIVITY AND STATUS

The status-influence relation is well-known (Bass, 1960, Chapter 14) and well-documented. The question remaining here then was to what extent tested sensitivity was associated with influence merely because education, occupational and organizational status contributed equally to influence and to sensitivity.

The sensitivity of 29 participants administered the test only after training was examined in relation to their education and organizational status. Table 3 shows the mean performance of first-line and second-line (or higher) college graduate supervisors, engineers, administrators and technicians and first and second-line non-technically educated supervisors. Second-line science-engineering graduates were generally older and more experienced than their first-line junior technically-trained associates, as well as of higher rank in the company. Conversely, first-line non-technically trained supervisors were among the oldest men in the plant, likely to have the least education, and the most seniority. (In the second-line of non-technically educated supervisors might be men with business, law or arts degrees.)

The F ratio of 2.26 attributable to the interaction of status and education failed to attain statistical significance according to the appropriate analysis of variance. (An F of 2.91 is signifi-

cant at the 10 per cent level for 1 and 26 d. f.). Yet, the results shown in Table 3 suggest that first-line non-technically educated supervisors with the most seniority and experience tend to earn the highest sensitivity scores while young technically-educated engineers and scientists earn the lowest scores. Minimally, we infer that education, alone; or status, alone; do not account for differences in sensitivity scores.

TESTED SENSITIVITY RELATED TO ORIENTATION

For a new sample of 30 laboratory participants, correlations between tested sensitivity based on one administration near the end of the laboratory of the film and the sentence completion test and the SIT Inventory (Bass, 1961) uncovered no significant relationships between tested sensitivity and orientation in groups although it might have been supposed prior to the previously cited study that interaction-oriented persons would be more sensitive. The correlations between tested sensitivity and orientations were as follows: self, $-.17$; interaction, $.16$; task, $-.05$. Although concerned about the nature of the interaction and particularly interested in maintaining smooth working relationships, it was pointed out in the preceding report that despite his concern, the interaction-oriented individual is relatively superficial in his understanding what is going on about him in the group. His concern does not seem to bring forth much greater understanding of group relations in comparison to the perceptivity of task or self-oriented members. If anything, the lack of correlations here would corroborate these findings of our earlier report.

SUMMARY

A sentence completion film reaction test was developed to detect sensitivity to interpersonal phenomena.

The examination has a test-retest reliability of .71. Performance on the test is significantly increased as a consequence of a management training laboratory. The scores match opinions of peers and staff psychologist's appraisals. Sensitivity scores correlate significantly with influence in small group discussions, but not necessarily with job status in one's organization. Young engineers appear to earn particularly low scores. Sensitivity scores seem to bear little relation to whether the individual is self, interaction or task-oriented in groups.

SUMMARY

A sentence completion film reaction test was developed to detect sensitivity to interpersonal phenomena.

The examination has a test-retest reliability of .71. Performance on the test is significantly increased as a consequence of a management training laboratory. The scores match opinions of peers and staff psychologist's appraisals. Sensitivity scores correlate significantly with influence in small group discussions, but not necessarily with job status in one's organization. Young engineers appear to earn particularly low scores. Sensitivity scores seem to bear little relation to whether the individual is self, interaction or task-oriented in groups.

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TABLE 1

COMPARISON OF TWO SAMPLES ADMINISTERED THE SENTENCE COMPLETION
TEST ONLY ONCE AFTER TRAINING WITH A SAMPLE ADMINISTERED THE
TEST BEFORE AND AFTER TRAINING

Time of Administration
of Film and Test

<u>Sample</u>	<u>N</u>	<u>Before Training</u>	<u>After Training</u>	
1	29	No	.93	
2	30	No	.37	
3	34	-1.65	.38	$p < .01$

TABLE 2

PRODUCT-MOMENT CORRELATIONS BETWEEN SENTENCE COMPLETION SCORES
AND RELATED MEASURES OF SENSITIVITY AND INFLUENCE

	<u>Sentence Completion</u>		<u>Peer Ratings of:</u>		
	<u>Before</u>	<u>After</u>	<u>Staff</u>	<u>Sensitivity</u>	<u>Influence</u>
	<u>Training</u>	<u>Training</u>	<u>Psychologist</u>		
			<u>Rating of</u>		
			<u>Sensitivity</u>		
Sentence Completion:					
Before		.71**	.38*	.27	.47**
After			.36*	.13	.28
Staff Psychologist				.27	.26
Peer Ratings:					
Sensitivity					.50**
Influence					

** $p < .01$ with 32 df when $r = .43$

* $p < .05$ with 32 df when $r = .33$

TABLE 3

MEAN SENSITIVITY RELATED TO EDUCATION AND ORGANIZATIONAL STATUS

<u>Education</u>	<u>Organizational Status</u>	
	<u>First-line</u>	<u>Second-line</u> <u>or higher</u>
Technically Trained Supervisors and Technicians	-.80	+1.22
Non-Technically Educated Supervisors	+2.6	.50

FIGURE 1: DIAGRAM OF SEATING ARRANGEMENT PROVIDED EXAMINEES RESPONDING
TO THE SENTENCE COMPLETION TEST FOR "12 ANGRY MEN"

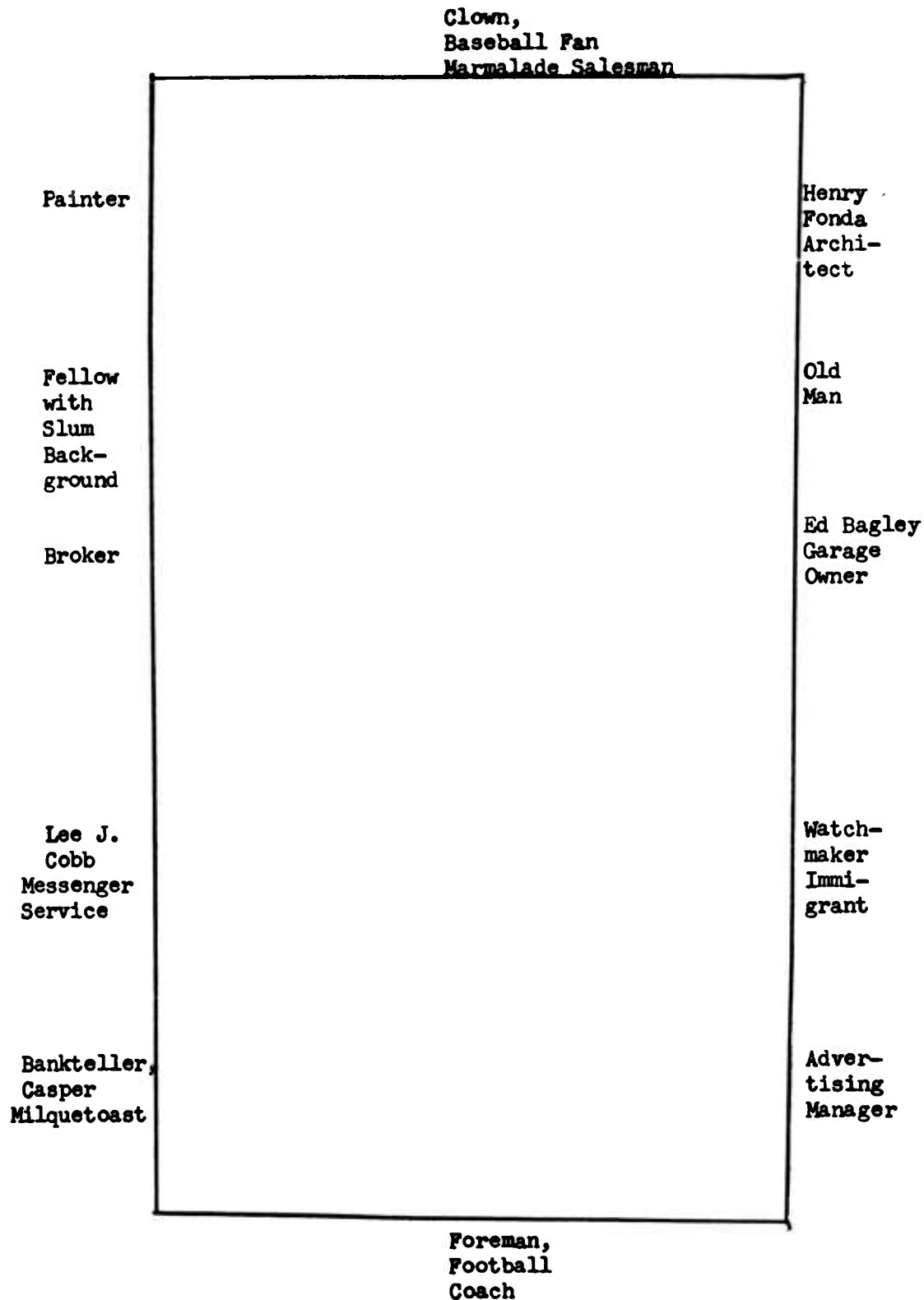


FIGURE 2: SENTENCE COMPLETION TEST FOR "12 ANGRY MEN" KEY FOR SCORING

DIRECTIONS: Score each reaction as A or B. If no response is made or if it is impossible to decide, score the reaction as O.

The Sensitivity Test Score is equal to the number of A's less the number of B's earned by an examinee.

1. The old man changed his vote because:
 - A: he wanted to support Henry Fonda, the architect; he wanted to hear more.
 - B: there was some doubt in his mind; he had learned not to be too sure of things; he critically reviewed the facts.
2. The advertising man changed his vote twice because:
 - A: he wanted to be accepted by the group; he could not stand the idea of being singled out and questioned; he missed feedback.
 - B: he was not sure; he was easily swayed; he resented pressure by others; he jumped to conclusions before getting all the facts; he had little or no conviction.
3. The owner of the messenger service (Lee Cobb) was so upset by the shift in voting by the group because:
 - A: of his personal opinion toward his son; personal revenge on his boy, as mirrored by the boy on trial, slipping away from him, personal feelings towards own son; fixed resentment toward his son which he let interfere with his decision; his own family history.
 - B: he had his mind made up when he entered the jury room; he was anxious to get back to his business and he felt this would delay a final decision; he wanted to convict the defendant for reasons other than the trial; things seemed to be going against him; he was responding to people rather than facts and he was concerned about his own business; he wanted a guilty verdict; he was losing his influence in the group to Fonda and he wished to dominate the group; he was in a hurry to get away; like many people it hurt his pride to admit he might be wrong; he was rather rigid in his opinion.

(continued on next page)

(Figure 2 continued)

4. The architect did not try to argue with the salesman (baseball fan) as much as he did with the broker because:

A: he knew the salesman would follow the crowd; the broker would have to be convinced before changing vote and carried a lot of weight if his vote was changed, but the fan would go along with whatever everyone else decided; if he could convince the broker, the broker would carry much more influence if he changed than would the salesman.

B: he was too hot headed; he was not capable of making clear cut decisions; he would get too angry; argument with certain personalities is useless; the salesman presented no facts about which to argue as did the broker who was dealing methodically with them.

5. On the second ballot, the old man was the one who changed his vote. But the messenger service owner (Lee Cobb) thought it was the man from the slums who had changed. This was because of:

A: because the man from the slums had a similar background; he thought the man from the slums was acting in sympathy with one of his kind.

B: prejudice; he claimed all people from the slums were the same; he had a bad opinion of him; the man from the slums had just presented an argument in favor of the accused.

6. The architect (Henry Fonda) was able to influence the other members because:

A: of his ability to get them to talk it through; he was able to get them talking and reasoning about the case; he invited participation and was a good listener he did not try to dominate; he drew out the facts from others and caused them to think and discuss the problem; his ability to get the individual to begin thinking for himself; he let others more or less convince themselves.

B: he was level-headed and presented facts well; self-control; he was a good talker and brought out points of doubt that were in his mind; others would listen to facts; each person was affected by the evidence; he kept a cool head and stuck to his beliefs; good logic and sound emotional judgment; he brought out his points well; he used a logical open-minded approach; he was calm and collected and prevented facts creating doubts as to the guilt of the boy; he was not sure of the guilt of the boy and wanted all the facts.

(continued on next page)

(Figure 2 continued)

7. The cough drops were significant because:

- A: it was a way for the bank teller to show Fonda that the bank teller was with him and to the garage owner that the bank teller was not with him; it permitted Fonda to show the bank teller that he was his friend and for the bank teller to use the request for drops to indicate whose side he was on; it helped to gain friendships; it gained confidence and brought the two men closer together; they were used by Fonda to gain friendship or man; they first created a feeling of acceptance between Fonda and the bank teller; then rejection between the bank teller and the garage owner.
- B: they were shared; at the height of arguments they were suggested; they created a break in the argument that let people gather their wits (a cooling off period), they gave some relief from the heat.

8. What I found most interesting in the film was:

- A: ("group think" oriented) to watch the group interaction; the way that Fonda controls himself under pressure from the group; the ability on the part of one man to get eleven others to talk it over and reach a decision; the general pattern of the whole thing, the presentation of the problem; gathering the facts and discussion following each new fact; to see what group discussion and collective thinking brought out so many new facts; members changing their minds after group discussion despite their original positive views; the group in action.
- B: (person-individual-actor oriented) the final verdict that all twelve were able to get together; that people are prone to be influenced by their personal problems; the illustration of emotional changes and the way they affect reactions of men to particular arguments; the way that Henry Fonda conducted himself throughout the entire session; that it was one against twelve from the beginning; the characterizations by the actors; the subject of the stories; how the characters reacted to various pressures and situations; the way that Fonda out-talked the rest and lead them to his point of view by being calm and collected; Fonda in presenting the various points created doubt in such a way as to change the thinking of the entire jury; the power of one man to sway so many; how eleven men could be changed by one.

FIGURE 3: FREQUENCY DISTRIBUTION OF TEST SCORES OF
MANAGEMENT TRAINING LABORATORY PARTICIPANTS
BEFORE AND AFTER THE LABORATORY

